

FIG. 145: Concave spinneret cylinder. (Front view.)

FIG. 146: Convex and concave spinneret cylinders meshed together. (Front view.)

The following claims were originally filed 30 MAY 2000 but were not taken into consideration. They completely replace the claims as filed 27 APR 2000.

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1. A hair isolation means comprising:

- a. a means of guiding skin-attached hairs into a hair-flow pathway in which the portions of said hairs in said pathway have their shafts oriented lengthwise largely perpendicularly to their direction of movement through said pathway;
- b. an entrance-gate means which movably and intermittently intersects said hair-flow pathway, thereby preventing hair-flow movement past a certain point along said pathway while said entrance-gate means is intersecting said pathway, and allowing hair-flow movement past said entrance-gate means to a farther point along said pathway when it is intermittently moved into a position which largely does not intersect said pathway;
- c. a pushback-gate means which movably and intermittently intersects said hair-flow pathway placed at a position earlier-encountered by each hair moving through said hair-flow pathway than said entrance-gate means is encountered by each said hair;
- d. a metering-area means which is formed by the region of said hair-flow pathway between said entrance-gate means when largely intersecting said hair-flow pathway and said pushback-gate means when largely intersecting said hair-flow pathway where in said metering-area means one or a limited number of skin-attached hairs are held largely isolated from other hairs in said hair-flow pathway.

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2. As in 1, where at a certain moment, said pushback-gate means is held in a position largely intersecting said hair-flow pathway while said entrance-gate means is intermittently moved into position which largely does not intersect said hair-flow pathway, thereby allowing one or a limited number of skin-attached hairs to move past the metering area and farther along said hair-flow pathway while hairs which have not yet entered said metering-area means are momentarily prevented from progressing any farther along said hair-flow pathway.

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3. As in 1, where the portions of said skin-attached hairs moving through said hair-flow pathway are held largely perpendicularly relative to the skin's surface during their movement through said hair-flow pathway.

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4. As in 1, where the entrance-gate means has its intermittent movement controlled by a logical control means, such as an electronic logical control circuit.

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5. As in 4, where said logical control means controls the timing of said entrance-gate movement.

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6. As in 4, where said logical control means controls entrance-gate movement contingently based on hair-presence sensor inputs into said logical control means.

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7. A means of preventing hair buildup in front of some portion of an advancing hair-processing system means by bending skin-attached hairs so that they may bypass an obstruction to hair movement caused by some part of a functionally integrated hair-processing system means comprising:

a. a hair-processing system means that has a hair-flow pathway running through it, where there is an obstruction formed by part of said hair-processing system means along said pathway at which hairs are obstructed from continuing along their current direction of movement relative to the processing system means while maintaining largely the same longitudinal shaft orientation relative to the skin;

b. a hair-engagement means so positioned at a region along said hair-flow pathway that skin-attached hairs moving through said hair-flow pathway which have come into the proximity of said obstruction will simultaneously be close enough to said hair-engagement means to be engaged by it and have a motive force applied to them by it which results in said skin-attached hairs being passed under a largely skin-facing surface of said hair-processing system means in a manner such that the linear rate at which a measurable length of each hair shaft which has passed under said skin-facing surface of said hair-processing system means exceeds the linear rate of movement of said hair-processing system means relative the surface of the skin, thereby allowing said skin-attached hairs to bypass said obstruction. ^{n pa}

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8. As in 7, where said skin-attached hairs are passed, proximal regions first, under a largely skin-facing surface of said hair-processing system means in a manner that causes each said skin-attached hair to orient the length of its shaft into an arc which forms between a largely skin-facing surface of said hair-processing system means and the point where each said skin-attached hair attaches to the skin.

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9. As in 7, where said hair-engagement means engages said skin-attached hairs by a means selected from at least one of the following:

a. pinching between two surfaces;

- b. a hook means;
- c. an adhesive means;
- d. an electric charge means;
- e. directed flow of a fluid.

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10. As in 7¹ where said hair-engagement means conveys said motive force to said skin-attached hair by a means selected from at least one of the following:

- a. rotary motion of said hair-engagement means;
- b. reciprocating motion of said hair-engagement means;
- c. directed flow of a fluid;
- d. through an electric charge.

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11. A tensioning hair-straightener means for orienting the proximal portions of skin-attached hairs' longitudinal shafts into a largely perpendicular orientation relative to the skin which they are attached prior to entry of said hairs into a functionally integrated hair-processing system means comprising:

- a. a tensioning hair-straightener means with a hair-flow pathway running through it in which a hair-engagement means is so positioned relative to the hairs in said pathway that it may engage said hairs and convey a motive force to portions of said hairs, thereby causing the proximal portions of said hairs to move away from the skin to which they are attached until said proximal portions of said hairs are oriented largely perpendicularly relative to said skin;
- b. a hair-processing system means that has a hair-flow pathway in which the portions of said hairs in said pathway have their lengthwise shafts oriented largely perpendicularly to their direction of movement through said hair-flow pathway, where said hair-processing system means trails said tensioning hair-straightener means and said pathway in said hair-processing system means is supplied hairs whose proximal lengthwise portions are oriented largely perpendicularly relative to the skin by a hair-flow pathway leaving said tensioning hair-straightener means.

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12. As in 11¹ where said hair-engagement means is selected from at least one of the following:

- a. pinching between two surfaces;
- b. a hook means;
- c. an adhesive means;
- d. an electric charge means;
- e. directed flow of a fluid.

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13. As in 11, where said hair-engagement means conveys said motive force to portions of said skin-attached hairs using a means selected from at least one of the following:

- a. rotary motion of said hair-engagement means;
- b. reciprocating motion of said hair-engagement means;
- c. directed flow of a fluid;
- d. through an electric charge.

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14. As in 11, where said tensioning hair-straightener means is so mounted relative to said hair-processing system means that said skin-attached hairs come into contact with specific regions of said tensioning hair-straightener means in manner so that each said region conveys said motive force to a typical skin-attached hair sequentially in the following order including at least one of the following sequential regions:

- a. in a region of force conveyance which extends down below and in front of the front of the hair-processing system means down to or very near the surface of the scalp;
- b. in a region of force conveyance which extends directly in front of the hair-processing system means;
- c. in a region of force conveyance which extends above and in front of the hair-processing system means;
- d. in a region of force conveyance which extends directly above the hair-processing system means.

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15. As in 11, where said skin-attached hairs whose more proximal portions have been brought into a sufficiently perpendicular orientation relative to the skin are held largely in this orientation during their exit from said tensioning hair-straightener means and entry into said hair-processing system means by a pinching means placed to the sides of said hair-flow pathway through said tensioning hair-straightener means and at a height above the skin at least equal to the minimum length of the proximal portion of a skin-attached hair which needs to be held largely perpendicular relative to said skin.

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16. As in 15, where said pinching means intermittently tightens and loosens its grasp on the skin-attached hairs which it pinches.

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17. As in 15, where said pinching means is configured as a rotary pinching surface whose linear rate of movement and direction relative the tensioning hair-straightener means as a whole approximately equals the linear rate of movement and direction of the tensioning hair-straightener means as a whole relative to the surface of the skin.